

CLAIMS

1. A wafer polishing process comprising:
polishing a surface of a wafer in the presence of an oxidizer-free
medium; and, subsequently,
polishing the surface of the wafer in the presence of an oxidizing
medium.

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2. The wafer polishing process of claim 1, wherein said oxidizer-
free medium comprises an oxidizer-free slurry, and said oxidizing medium
comprises an oxidizing slurry.

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3. The wafer polishing process of claim 1, wherein said oxidizer-
free medium comprises an oxidizer-free fluid, and said oxidizing medium
comprises an oxidizing fluid.

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4. The wafer polishing process of claim 1, wherein said polishing in
the presence of an oxidizer-free medium and said polishing in the presence of
an oxidizing medium both occur at a first polishing station.

5. The wafer polishing process of claim 4, further comprising,
transferring said wafer from said first polishing station to a
second polishing station; and
polishing said surface of said wafer in the presence of an
oxidizing medium at said second polishing station.

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6. The wafer polishing process of claim 1, wherein said polishing in
the presence of an oxidizer-free medium occurs at a first polishing station and
said polishing in the presence of an oxidizing medium occurs at a second
polishing station.

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7. The wafer polishing process of claim 1, wherein said polishing in
the presence of an oxidizer-free medium and said polishing in the presence of
an oxidizing medium both comprise linear chemical-mechanical polishing.

8. The wafer polishing process of claim 1, wherein said surface comprises a copper-containing component.

9. The process of claim 8, wherein said oxidizing medium comprises at least one oxidizer capable of oxidizing at least a portion of said copper-containing component.

5 10. A wafer polishing process comprising:
supplying an oxidizer-free medium to a polishing portion of a polishing station;
polishing a surface of a wafer in the presence of said oxidizer-free medium at said polishing station;
discontinuing the supply of said oxidizer-free medium to the polishing portion;
supplying an oxidizing medium to the polishing portion; and
polishing the surface of the wafer in the presence of said oxidizing medium at said polishing portion.

11. The wafer polishing process of claim 10, wherein said surface comprises a copper-containing component.

20 12. The wafer polishing process of claim 10, wherein said oxidizer-free medium comprises an oxidizer-free slurry, and said oxidizing medium comprises an oxidizing slurry.

13. The wafer polishing process of claim 10, wherein said oxidizer-free medium comprises an oxidizer-free fluid, and said oxidizing medium comprises an oxidizing fluid.

25 14. A wafer polishing process comprising:
chemically-mechanically polishing a copper-containing surface of a wafer in the presence of an oxidizer-free slurry at a first polishing station;
transferring the wafer from said first polishing station to a second polishing station; and

chemically-mechanically polishing the copper-containing surface of the wafer in the presence of an oxidizing slurry at said second polishing station.

5 15. A wafer polishing system comprising:
a first chemical-mechanical polishing station having a polishing portion;
a source of an oxidizer-free medium in communication with said polishing portion; and
a source of an oxidizing medium in communication with said polishing portion.

10 16. The wafer polishing system of claim 15, further comprising:
a second polishing station; and
a transfer mechanism adapted to move said wafer from said first polishing station to said second polishing station.

15 17. A wafer polishing system comprising:
a first polishing station adapted to polish a surface of a wafer in the presence of an oxidizer-free medium;
a source of an oxidizer-free medium in communication with said first polishing station;
a second polishing station adapted to polish said surface of said wafer in the presence of an oxidizing medium;
a source of an oxidizing slurry in communication with said second polishing station; and
a transfer mechanism adapted to move a wafer from said first polishing station to said second polishing station.

20 18. The wafer polishing system of claim 17, wherein said source of oxidizing solution is also in communication with said first polishing station.

25 19. The wafer polishing system of claim 17, further comprising:

a second source of an oxidizing medium in communication with said first polishing station.

20. The wafer polishing station of claim 17, wherein said oxidizer-free medium comprises an oxidizer-free slurry, and said oxidizing medium comprises an oxidizing slurry.